F&C SAFETY DATA SHEET
Catalog No.:910930
Product name: Potassium hydroxide solution 45%-50%

1 company/undertaking

Catalogue No.:910930
Product name: Potassium hydroxide solution 45%-50%

Manufacturer/supplier identification

Company: Fertilizers & Chemicals Ltd.
P.O.box 1428, Haifa 31013, Israel

Contact for information: Tel +972-4-8468178/179 Fax +972-4-8468296

Emergency Tel. No.: +972-4-8451578 +972-4-8468229

2. Composition/information on ingredients
aqueous solution of potassium hydroxide.

Synonyms:
Caustic potash solution; Potash liquor; Potassium lye.

Hazardous ingredients:
Name according to EC directives: Potassium hydroxide
Hazard symbols: C
EC No.: 215-181-3
CAS-No.: 1310-58-3
R-phrases: 35 causes severe burns content: 45%-50%

3. Hazards identification
Corrosive. The substance is very corrosive to the eyes, the skin and the respiratory tract. Corrosive on ingestion. Inhalation of an aerosol of the substance may cause lung oedema.

4. First aid measures.
After skin contact: wash off with plenty of water. Remove contaminated clothing.
After inhalation: remove to fresh air. Give artificial respiration if breathing has
stopped. If breathing is difficult, give oxygen. Get medical attention.
After eye contact: rinse out with plenty of water for at least 20 minutes with the eyelid held wide open. Get immediately medical attention.
After swallowing: Make victim drink plenty of water. Do not induce vomiting. Do not attempt to neutralize. Get immediately medical attention.
Do not give liquids to an unconscious person.

5. Fire fighting measures
Suitable-extinguishing media:
In adaption to materials stored in the immediate neighborhood.
Special risks:
Non-combustible.
Hydrogen may form upon contact with light metals (danger of explosion!)
The following may develop in event of fire:
hazardous vapours of potassium oxides (K₂O).
Special protective equipment for fire fighting:
Avoid any contact. Wear full protective clothing and self-contained breathing apparatus in positive pressure mode.

6. Accidental release measures
Person-related precautionary measures:
Evacuate area. Stay upwind and away from spill release. Use caution around spill area, potassium hydroxide solution is extremely slippery.
Wear impervious full body covering suit with heavy rubber boots. Avoid substance contact. Do not inhale vapor/aerosols.
Procedures for cleaning/absorption:
Contain spill and stop leak if it can be done without risk. Take up with non-combustible liquid-absorbent material (e.g. dry sand, earth, vermiculite). Collect leakage in sealed containers. Forward for disposal. Ventilate and wash area after clean-up is complete.
Environmental-protection measures:
Do not allow to enter sewerage system.

7. Handling and storage
Handling:
F&C SAFETY DATA SHEET

Catalog No.: 910930
Product name: Potassium hydroxide solution 45%-50%

Avoid contact with eyes, skin, and clothing. Wear all recommended personal protective clothing when handling.

Avoid adding water to solution. Always add caustic to water to prevent spattering or boiling.

Storage:
store in a cool, dry, well-ventilated place. Keep container tightly closed and away from incompatible materials (see section 10).

Requirements for storage rooms and containers:
No aluminium, tin, zinc or their alloys containers.

8. Exposure controls/personal protection

Specific control parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL USA (OSHA)</td>
<td>2 mg/m³</td>
</tr>
<tr>
<td>TLV USA (ACGIH)</td>
<td>2 mg/m³</td>
</tr>
</tbody>
</table>

Personal protective equipment:
Respiratory protection: Required when vapors/aerosols are generated.
Eye protection: Chemical safety goggles and face shield (8-inch minimum)
Hand protection: Chemical resistant gloves.
Skin protection: Impervious protective clothing.

Ventilation: Mechanical exhaust required.

Other protective equipment: Safety shower and eye bath.

Industrial hygiene:
Immediately change contaminated clothing. Apply skin-protective barrier cream. Wash hands and face after working with substance.

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>colourless</td>
</tr>
<tr>
<td>Odour</td>
<td>odourless</td>
</tr>
<tr>
<td>pH value (20°C)</td>
<td>~14</td>
</tr>
<tr>
<td>Melting temperature</td>
<td>5 °C (50%)</td>
</tr>
<tr>
<td>Boiling temperature</td>
<td>140 °C (50%)</td>
</tr>
<tr>
<td>Ignition temperature</td>
<td>not available</td>
</tr>
<tr>
<td>Flash point</td>
<td>not available</td>
</tr>
<tr>
<td>Explosion limits lower</td>
<td>not available</td>
</tr>
</tbody>
</table>
F&C SAFETY DATA SHEET

Catalog No.: 910930
Product name: Potassium hydroxide solution 45%-50%

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative vapour density</td>
<td>not available</td>
</tr>
<tr>
<td>Density (20°C)</td>
<td>1.46 g/cm³ (45%)</td>
</tr>
<tr>
<td>Solubility in water (20°C)</td>
<td>Completely Miscible</td>
</tr>
</tbody>
</table>

10. Stability and reactivity

Stable under normal conditions.

Conditions to be avoided

Moisture, exposure to moist air or water, prolonged exposure to air.
Reacts with carbon dioxide from air to form potassium carbonate.

Substances to be avoided

Common metals and their alloys, such as aluminium, magnesium, tin and zinc: formation of hydrogen (risk of explosion!).
Ammonium compounds: formation of ammonia,
Acids and their anhydrides, organic halogen compounds, especially trichloroethylene, may cause violent reaction. Nitriles, cyanides, organic nitro compounds (formation of shock-sensitive salts), organic combustible substances, phenols and oxidizable substances.

Hazardous decomposition products

The following may develop in event of fire: hazardous vapours of potassium oxides (K₂O).

11. Toxicological information

RTECS No.: TT2100000

Acute toxicity

LD₅₀ (oral rabbit) 273 mg/kg (for pure substance))
Eye rabbit: 1 mg/24H/severe
Skin rabbit: 50 mg/24H/severe

Further toxicological information

After skin contact: burns, necrosis.
After eye contact: burns, necrosis, Risk of blindness!

Further data

The product should be handled with the care usual when dealing with chemicals.
F&C SAFETY DATA SHEET

Catalog No.: 910930
Product name: Potassium hydroxide solution 45%-50%

12. Ecological information

Ecotoxic effects:
Biological effects: Toxic effect on fish and plankton. Harmful effect due to pH shift. Death of fish possible. Does not cause biological oxygen deficit.
Neutralization possible in waste water treatment plants
Fish toxicity: Gambusia affinis-LC₅₀: 80 mg/l /96h

Further ecological data:
Do not allow entering waters, waste water, or soil!

13. Disposal considerations

Product:
There are no uniform EC Regulations for disposal of chemicals of residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding laws and regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies, which will advise you on how to dispose of special waste.

Packaging:
Disposal in compliance with official regulations. Handle contaminated packing in the same way as the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

14. Transport information

Transport over land ADR/RID and
ADR/RID class: 8 Number and letter: II
Name of material: 1814 Potassium hydroxide solution

River transport over ADR/ADNR
not examined

Sea transport IMDG
IMDG class: 8 UN-No.: 1814 Packaging group: II
Ems: 8-06 MFAG: 705

Correct technical name: Potassium hydroxide, solution

Air transport ICAO-TI and IATA-DGR
ICAO/IATA class: 8 UN/ID-No.: 1814 Packaging group: II

Correct technical name: Potassium hydroxide, solution
F&C SAFETY DATA SHEET

Catalog No.: 910930
Product name: Potassium hydroxide solution 45%-50%

NFPA Hazard Rating: Health 3  Fire 0  Reactivity 1
Hazchem Code: 2 R

15. Regulatory information
Labeling according to EC Directives
Symbol: C Corrosive
R-phrases: 35 Causes severe burns
S-phrases: 26-36/37/39-45 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Wear suitable protective clothing, gloves and eye/face protection.
In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

16. Other information
Date of issue: 17.03.05
2nd Revision

All information, recommendations and suggestions herein concerning our products are based upon tests and data believed to be reliable, however, it is the users responsibility to determine the safety, toxicity and suitability for his own use of the product described herein. Since the actual use by others is beyond our control, no guarantee, expressed or impressed or implied is made by F&C, as to the effects of such use, the results to be obtained or the safety and toxicity of the product nor does F&C assume any liability arising out of the use, by others, of the product referred to herein. Nor is the information herein to be construed as absolutely complete since additional information may be necessary or desirable when particular or exceptional conditions or circumstances exist or because of applicable laws or governmental regulation.